

This I carefully searched and was about to release, when I noticed a half-grown larva of *iris* near the extremity of the branch I held in my hand, and when taking this found two more on the same shoot, on adjacent leaves. I was now satisfied that the insect is widely spread and by no means rare around this area, and so gave up active search and merely wandered around to see if there were any similar sallows in nearby areas. I found several very similar indeed, but no larvae, so I am still no wiser as to what the special requirements of this species are. Indeed, on the way out of the woods I beat a fallen willow which was lying prone and took a larva from it. This fallen willow was absolutely in the open.

These larvae were kept in a leno cage 24 by 18 by 12. I provided them with a fresh small branch of large-leaved willow daily, and they changed from the old to the newer branch about every other day. This larva is hard to see. I knew there were eight larvae in the cage, but could seldom see more than five or six, even when I took the branches out and looked them over, until the second or third try. One larva was always on the underside of a leaf. All pupated the same week and all used a willow leaf to pupate on. They pupated about sundown and I watched several of them go through this stage. The previously inactive larva would suddenly begin to sway from side to side violently and at the same time to expand itself from the normal larval shape to that of the pupa. This caused the larval skin to split at the bottom (head) and from this stage until the pupa was completely free averaged three minutes. The violent movement was continued after the pupa was free until the larval skin had actually fallen and even after, apparently to make sure that the skin was gone. I saw no sign that this pupa is especially liable to fall at this time; they all seemed well anchored, and to know it. The imagines all emerged before mid-day and there were 6 ♂s to 2 ♀s. The season was early, all out by July 20th, and all of large size. Being used to dealing with Noctuae, I was not equal to dealing with this species. Three emerged one day and while I was taking one out of the cage the other two, as quick as thought, were out and away through the outhouse door.

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## ON THE OCCURRENCE OF NORTHERN AND SOUTHERN SPECIES OF CARABIDAE IN A SECTION OF THE WEALD.

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For the last three years I have been engaged on a detailed study of the beetles of the district around Tunbridge Wells. The precise area covered by my investigations is as follows:—Northern boundary—the top of the escarpment of the North Downs between Westerham and the Medway gap; Southern boundary—the Forest Ridge of Sussex between West Hoathly and Mayfield; Western boundary—the road from Westerham to East Grinstead and West Hoathly; Eastern boundary—the River Medway between Halling and Yalding, the river Teise to Goudhurst and the road to Kilndown, Flimwell, and Mayfield. It will be seen that this defines a sector of the Weald with the outcrops of all the Geological

formations from the Chalk to the Ashdown sands. I have subdivided the area into the following Geological parts: the Chalk escarpment, the Gault valley (or Holmesdale), the Lower Greensand ridge, the wide low-lying marshy Weald Clay belt, and the diversified hilly Hastings beds country. The Chalk forms a steep scarp facing South and mostly covered with grass and scrub with some Beech-woods; the Gault is mainly covered by lush pastures with many Elm trees; the Lower Greensand supports woods and heaths, and to the South forms a bold scarp which is largely wooded; the Weald Clay belt is mostly pasture with stretches of damp Oak-wood and marshes, while the Hastings beds include small-scale examples of almost all types of scenery. As the latter group covers the largest area of my subdivisions, and I live in the middle of it, it has naturally provided much the largest number of the specimens collected. But even allowing for this, my records suggest that a greater number of species occur in the Hastings beds area than in any of the others. I had more than once noticed that species of beetle occurring on the Chalk downs and not elsewhere in our area were recorded by Joy as limited to S.E. England, while species frequenting the wet cold soils of the Weald Clay were recorded as ranging up to the North of Scotland. This prompted me to try to find out which species were, in our area, near the northern limit of their range (Southern species) and which were near their southern limit here (Northern species). Using the Calvers *Käferbuch* (Stuttgart, 1893) on the European forms and Joy's Handbook for the British species, I listed those species which were recorded from Scotland and Scandinavia but not southern France or Italy, and those whose range included Italy, southern France, and South Germany but not Scotland or Scandinavia. The occurrence of the species of each group in our area was then analyzed. In the *Carabidæ* the results may be summarized as follows:—Southern Species: Chalk, 4; Lower Greensand, 7; Hastings beds, 21; Weald Clay, 2. Northern Species: Chalk, 1; Lower Greensand, 1; Hastings beds, 18; Weald Clay, 11. The Gault Clay belt is omitted as I have almost no data from it. The results may be tabulated as follows:—

## NORTHERN SPECIES.

Species.	C.	L.G.	H.B.	W.C.
<i>Elaphrus riparius</i> , L. ....	-	-	+	+
<i>E. cupreus</i> , Duft. ....	-	-	+	+
<i>Loricera pilicornis</i> , F. ....	-	-	+	+
<i>Clirina fossor</i> , L. ....	-	-	+	+
<i>Oeys 5-striatus</i> , Gyll. ....	-	-	+	-
<i>Beumbidion doris</i> , Pz. ....	-	-	+	+
<i>B. 4-guttatum</i> , F. ....	-	-	+	-
<i>B. 4-maculatum</i> , L. ....	-	-	+	-
<i>B. rupestre</i> , L. ....	-	-	-	+
<i>B. ustulatum</i> , L. ....	-	-	+	+
<i>Badister bipustulatus</i> , F. ....	-	-	+	-
<i>Patrobis excavatus</i> , Pk. ....	-	-	+	-
<i>Bradycellus similis</i> , Dj. ....	-	-	+	-
<i>Acupatpus meridianus</i> , L. ....	-	-	+	+
<i>Amara aenea</i> , De G. ....	-	+	+	+
<i>Pterostichus niger</i> , Schall. ....	-	-	+	-
<i>P. nigrita</i> , F. ....	-	-	+	-
<i>Europhilus gracilis</i> , Gyll. ....	-	-	-	+
<i>Dromius agilis</i> , F. ....	-	-	+	-
<i>Metabletus truncatellus</i> , L. ....	+	-	+	-

## SOUTHERN SPECIES.

Species.	C.	L.G.	H.B.	W.C.
<i>Carabus monilis</i> , F. ....	-	-	+	-
<i>Leistus fulvibarbis</i> , Dj. ....	-	-	+	+
<i>Notiophilus aquaticus</i> , L. ....	-	-	+	-
<i>N. palustris</i> , Dj. ....	+	+	+	-
<i>N. 4-punctatus</i> , Dj. ....	-	+	+	-
<i>N. rufipes</i> , Curtis ....	+	+	+	-
<i>N. substriatus</i> , Waterh. ....	-	-	+	-
<i>Ocys harpaloides</i> , Serv. ....	-	-	+	-
<i>Bembidion guttula</i> , F. ....	-	-	+	-
<i>B. 4-pustulatum</i> , Serv. ....	-	-	+	-
<i>B. tibiale</i> , Duft. ....	-	-	+	-
<i>Badister dilatatus</i> , Chand. ....	-	-	+	-
<i>Bradycellus harpalinus</i> , Serv. ....	-	-	+	-
<i>B. verbasci</i> , Duft. ....	-	-	+	-
<i>Pterostichus modicus</i> , F. ....	+	+	+	-
<i>P. inaequalis</i> , Marsh. ....	-	-	+	-
<i>Calathus fuscipes</i> , Goez. ....	-	+	+	-
<i>C. piceus</i> , Marsh. ....	+	-	+	-
<i>Synuchus nivalis</i> , Pz. ....	-	-	+	-
<i>Metabletus obscuroguttatus</i> , Duft. ....	-	+	+	-

In the above table + in the column C. means that the species has been found in the Chalk belt, L.G. the Lower Greensand belt, H.B. the Hastings beds area, and W.C. the Weald Clay. It will be observed that nearly all of both Northern and Southern species are recorded from the Hastings beds, and that the Lower Greensand, like the Chalk, has an unusually high percentage of Southern forms.

A similar analysis of the records of *Staphylinidae* did not show any notable difference in the proportions of Northern and Southern species on the Chalk and the Weald Clay. But it must be remarked that many of the *Staphylinidae* are not really terrestrial insects, and in any case their European distribution had not been so well studied as that of *Carabidae* at the time of Calwers' book.

If any readers of the *Entomologist's Record* can add anything to these results, I should be very pleased to hear from them.

## COLLECTING NOTES.

SMODICUM CUCUJIFORME, SAY. (COL. CERAMBYCIDAE) TAKEN IN ENGLAND.—On 27th August 1934, Miss Irene Kirk took a specimen of this North American longicorn on the floor in a room in her sister's house in Oakhill Road, Putney. I had intended to record this capture at the time, but forgot to do so. As pointed out in *British Ants* [2nd Edtn., p. 385 (1927)], it seems advisable to enumerate all foreign species of insects captured in this county, as it shows how and where they were, or might have been introduced, should they obtain a footing here. When Irene found a specimen of the pretty little Clerid beetle, *Denops albofasciatus*, Charp., in the same house on 20th August 1933 [*Ent. Rec.*, 45, 164 (1933)], I pointed out there were many oak logs in the cellar from Windsor Forest; many sticks in the garden brought up from the same locality, and the fence one side of the garden consisted of oak panelling from Windsor Great Park.—HORACE DONISTHORPE.

STAPHYLINUS FULVIPES, SCOP., IN WINDSOR FOREST.—On 28th June 1940, when collecting in Windsor Forest, I noticed a beetle running across a pathway some distance ahead of me. On capturing the insect